

AMENDMENTS TO THE CLAIMS

In accordance with 37 C.F.R. §1.121(c), please amend the claims as indicated in marked-up form below, where additions are underlined and where deletions are struck through.

Claim 1. (Currently Amended) A wire bond-less electronic component for use with a circuit external to the wire bond-less electronic component, the wire bond-less electronic component comprising:

a metal support substrate;

an electronic device over the support substrate; and

a cover located over the electronic device and the support substrate and comprising:

an interconnect structure electrically coupled to the electronic device and adapted to electrically couple together the electronic device and the circuit for providing impedance transformation of an electrical signal between the electronic device and the circuit.

Claim 2. (Original) The wire bond-less electronic component of claim 1 wherein:
the interconnect structure is located within the cover.

Claim 3. (Original) The wire bond-less electronic component of claim 1 wherein:
the interconnect structure is located at a surface of the cover.

Claim 4. (Original) The wire bond-less electronic component of claim 1 further comprising:

electrical leads located adjacent to the cover,

wherein:

the interconnect structure electrically couples together the electronic device and the electrical leads; and

the electrical leads electrically couple together the interconnect structure and the circuit.

Claim 5. (Original) The wire bond-less electronic component of claim 1 wherein:
the wire bond-less electronic component is a surface mount device.

Claim 6. (Original) The wire bond-less electronic component of claim 1 wherein:
the cover is self-aligned to the support substrate.

Claim 7. (Original) The wire bond-less electronic component of claim 1 wherein:
the electronic device is located in a device substrate; and
the cover is self-aligned to the device substrate.

Claim 8. (Original) The wire bond-less electronic component of claim 1 wherein:
the impedance transformation provided by the interconnect structure comprises:
a zero inductance ground potential for the electronic device.

Claim 9. (Original) The wire bond-less electronic component of claim 8 further comprising:

an electrical terminal at least partially located over the cover,

wherein:

the electrical terminal is electrically coupled to a portion of the interconnect structure providing the zero inductance ground potential.

Claim 10. (Original) The wire bond-less electronic component of claim 1 wherein:

the interconnect structure comprises:

a matching network.

Claim 11. (Original) The wire bond-less electronic component of claim 1 wherein:

the interconnect structure comprises:

a first portion comprising a direct current bias circuit; and

a second portion comprising an impedance transformation circuit.

Claim 12. (Original) The wire bond-less electronic component of claim 1 wherein:

the interconnect structure comprises:

a combining manifold.

Claim 13. (Original) The wire bond-less electronic component of claim 1 wherein:

the interconnect structure provides harmonic termination of the electrical signal between the electronic device and the circuit.

Claim 14. (Original) The wire bond-less electronic component of claim 1 further comprising:

an additional electronic device over the support substrate, under the cover, adjacent to the electronic device, and electrically coupled to the interconnect structure.

Claim 15. (Currently Amended) A wire bond-less electronic component for use with a circuit external to the wire bond-less electronic component, the wire bond-less electronic component comprising:

a metal flange;

a semiconductor substrate supported by the flange;

a semiconductor device supported by the semiconductor substrate; and

a lid located over the semiconductor device, the semiconductor substrate, and the flange, the lid comprising:

a multi-functional interconnect system electrically coupled to the semiconductor device and electrically coupling together the semiconductor device and the circuit for providing a direct current to the semiconductor device and for providing impedance transformation of electrical signals from the semiconductor device to the circuit and from the circuit to the semiconductor device.

Claim 16. (Original) The wire bond-less electronic component of claim 15 wherein:

the multi-functional interconnect system is embedded in the lid.

Claim 17. (Currently Amended) The wire bond-less electronic component of claim 15 wherein:

the multi-functional interconnect system is located ~~at a~~ below and adjacent to a bottom surface of the lid.

Claim 18. (Original) The wire bond-less electronic component of claim 15 wherein:
the lid is self-aligned to the flange.

Claim 19. (Original) The wire bond-less electronic component of claim 15 wherein:
the lid is self-aligned to the semiconductor substrate.

Claim 20. (Original) The wire bond-less electronic component of claim 15 wherein:
the multi-functional interconnect system comprises:

a direct current bias circuit for providing the direct current to the semiconductor device, and

an impedance transformation circuit for providing the impedance transformation of the electrical signals from the semiconductor device to the circuit and from the circuit to the semiconductor device; and

a power combining manifold.

Claim 21. (Original) The wire bond-less electronic component of claim 20 wherein:
the direct current bias circuit is entirely separate from the impedance transformation circuit.

Claim 22. (Original) The wire bond-less electronic component of claim 20 wherein:

the impedance transformation circuit further provides harmonic termination of the electrical signals from the semiconductor device to the circuit and from the circuit to the semiconductor device.

Claims 23-28. (Canceled)

Claim 29. (New) The wire bond-less electronic component of claim 1 wherein:

the interconnect structure is a multi-layer interconnect structure.

Claim 30. (New) The wire bond-less electronic component of claim 9 wherein:

the cover comprises an outer perimeter; and

the portion of the interconnect structure providing the zero inductance ground potential is located adjacent to the outer perimeter of the cover.

Claim 31. (New) The wire bond-less electronic component of claim 1 further comprising:

an electrically floating portion located within the cover.